

PERTUSSIS REPORT

February 2012

This report includes cases of pertussis reported in EpiSurv up to midnight 3 February 2012. Data were extracted from EpiSurv at 10.00 am 7 February 2012.

Summary

In the past two surveillance weeks (21 Jan -3 Feb 2012), 232 new cases of pertussis (109 and 123 cases, respectively) were notified, including 74 confirmed cases, 99 probable cases, two suspect cases, and 57 cases still under investigation. Five hospitalisations were reported during this period (2 and 3, respectively).

There has been a total of 507 pertussis notifications reported in EpiSurv since first week of 2012 (compared to 76 the same time in 2011), including 198 confirmed cases, 224 probable cases, five suspect cases, and 80 cases still under investigation. 22 hospitalisations and no deaths have been reported during this period.

In the last two weeks, the highest number of notifications was reported in Canterbury (60 cases) and Nelson Marlborough DHB (54 cases). The highest cumulative rate in 2012 was recorded in Nelson Marlborough (93.4 per 100 000, 129 cases), followed by West Coast (61.1 per 100 000, 20 cases) and Tairāwhiti (60.2 per 100 000, 28 cases) DHBs. The highest number of notifications was also reported from Nelson Marlborough DHB (129 cases), followed by Canterbury (101 cases), Capital and Coast (58), Tairāwhiti (28) and Hutt Valley (27) DHBs.

This report summarises pertussis notifications for 2012 (first surveillance week starts on 31 December 2011) and new cases in the last two weeks (ending 3 February 2012), and incorporates the temporal distribution of cases, the distribution of cases by age, ethnicity (prioritised), and DHB, as well as hospitalisations and immunisation status. The case classification used in this report is specified in the appendix.

Temporal distribution of pertussis cases

Figure 1 shows weekly total pertussis notifications for 2010, 2011 and 2012 (to week ending 3 February). Notifications for the past two weeks of 2012 remain well above 2011 and 2010, though in 2011 they have been running above 2010 levels since week 34 (ending 26 August 2011) and have been rising more or less consistently. Weekly notifications continue to increase in the past two weeks compared to the previous ones. Note the total number of notifications may change as cases are investigated further and some are found not to meet the case definition. No deaths have been reported since the beginning of this year.

Figure 1: Comparative epidemic curves of total pertussis notifications by week reported during years 2010, 2011 and 2012 (surveillance week = Saturday to Friday inclusive).

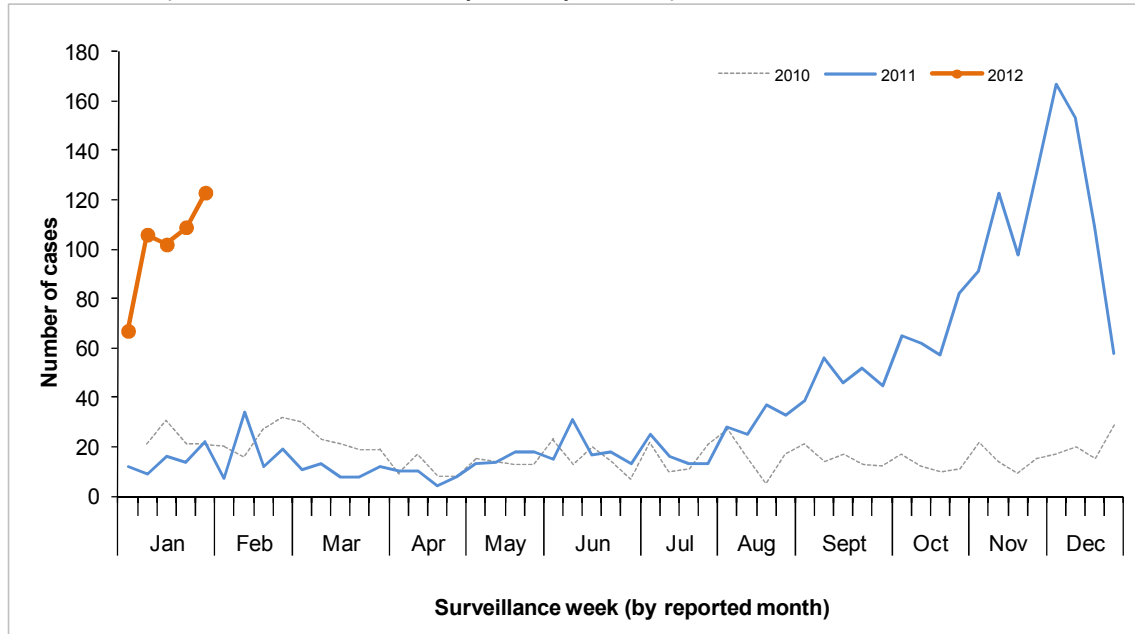
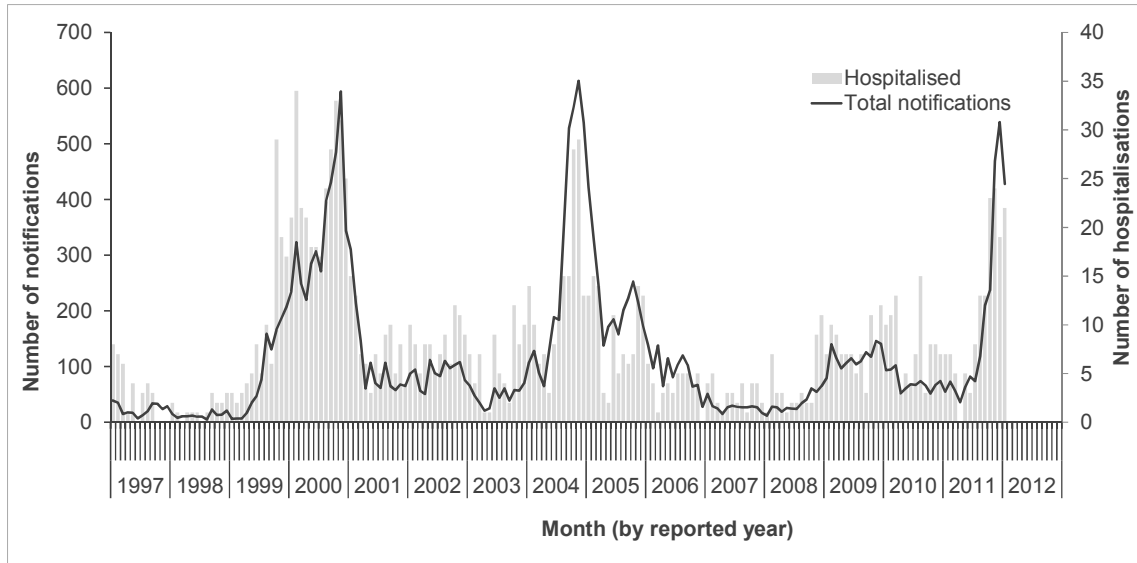


Figure 2 shows pertussis notifications and hospitalisations by calendar month between 1 January 1997 and 31 January 2012. A four to five-year cycle can be seen with large peaks in notifications in years 2000 and 2004 and a much smaller peak in 2009. However, notifications have been rising again since May 2011. Increases in hospitalisations show a similar cycle, although peaks in hospitalisations do not always coincide with peaks in notifications.

Figure 2: Pertussis notifications and hospitalisations by calendar month-year since 1997 up to 31 January 2012



Age distribution of cases

Figure 3 displays age-specific cumulative incidence of pertussis cases and Table 1 shows notifications and associated rates by age, including new cases for the last two weeks. Pertussis rates varied across age groups. Of the cases reported in 2012, infants had the highest cumulative incidence of pertussis cases (59.6 per 100 000 population, 38 cases), followed by the 1 to 4 years (34.3 per 100 000, 85 cases), and 5 to 9 years (22.3 per 100 000, 64 cases) age groups. Of the 504 cumulative cases with known age, three (0.6%) were infants under 6 weeks of age.

Figure 3: Age-specific pertussis cases per 100 000 populations in 2012

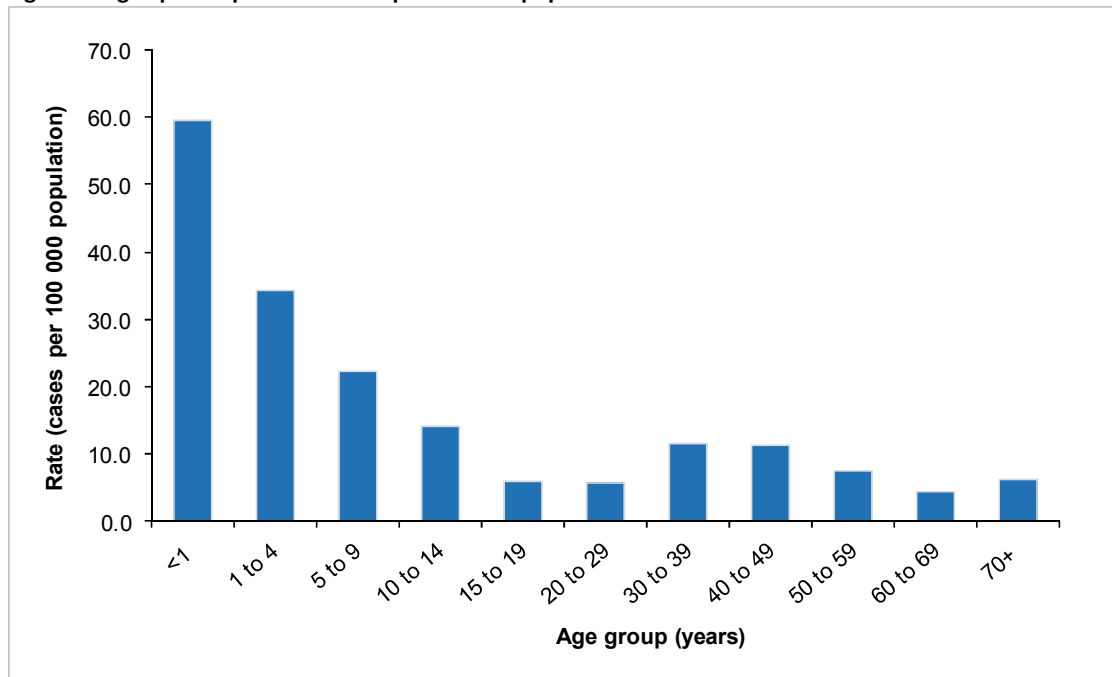


Table 1: Pertussis cases and rates by age group in 2012, and new cases in the last two weeks

Age group (Years)	Cumulative ² notifications			Last two weeks ³	
	Cases	Rates ¹	Hosp	New cases	Hosp
<1	38	59.6	17	10	4
1 to 4	85	34.3	0	48	0
5 to 9	64	22.3	1	17	0
10 to 14	42	14.2	0	17	0
15 to 19	19	5.9	0	11	0
20 to 29	35	5.8	0	16	0
30 to 39	66	11.6	1	36	0
40 to 49	72	11.3	0	34	0
50 to 59	41	7.6	3	21	1
60 to 69	18	4.4	0	8	0
70+	24	6.1	0	11	0
Unknown	3	-	0	3	0
Overall	507	11.6	22	232	5

¹Rate of pertussis cases per 100 000 population calculated using 2010 mid-year population estimates.

²Cumulative notifications since 31 December 2011

³Notifications between 21 January and 3 February 2012 inclusive

Hosp: hospitalisation counts

Ethnicity

Pertussis notifications and rates by ethnicity are shown in Table 2. Of the pertussis cases with known ethnicity, the European ethnic group had the highest numbers reported in the last two weeks (178 cases), followed by Māori (16 cases). Of the total notifications in 2012, the ethnic-specific cumulative rates were highest for the European ethnic group (14.1 per 100 000, 379 cases), followed by Māori (9.2 per 100 000, 52 cases) and Pacific Peoples (4.0 per 100 000, 9 cases).

Table 2: Pertussis cases and rates by ethnicity (prioritised) in 2012, and new cases in the last two weeks

Ethnicity	Cumulative ² notifications			Last two weeks ³	
	Cases	Rates ¹	Hosp	New cases	Hosp
Maori	52	9.2	6	16	0
Pacific Peoples	9	4.0	1	2	0
Other	14	3.7	1	4	0
European	379	14.1	12	178	4
Unknown	53	-	2	32	1
Overall	507	12.6	22	232	5

¹Rate of pertussis cases per 100 000 population calculated using 2010 mid-year population estimates.

²Cumulative notifications since 31 December 2011

³Notifications between 21 January and 3 February 2012 inclusive

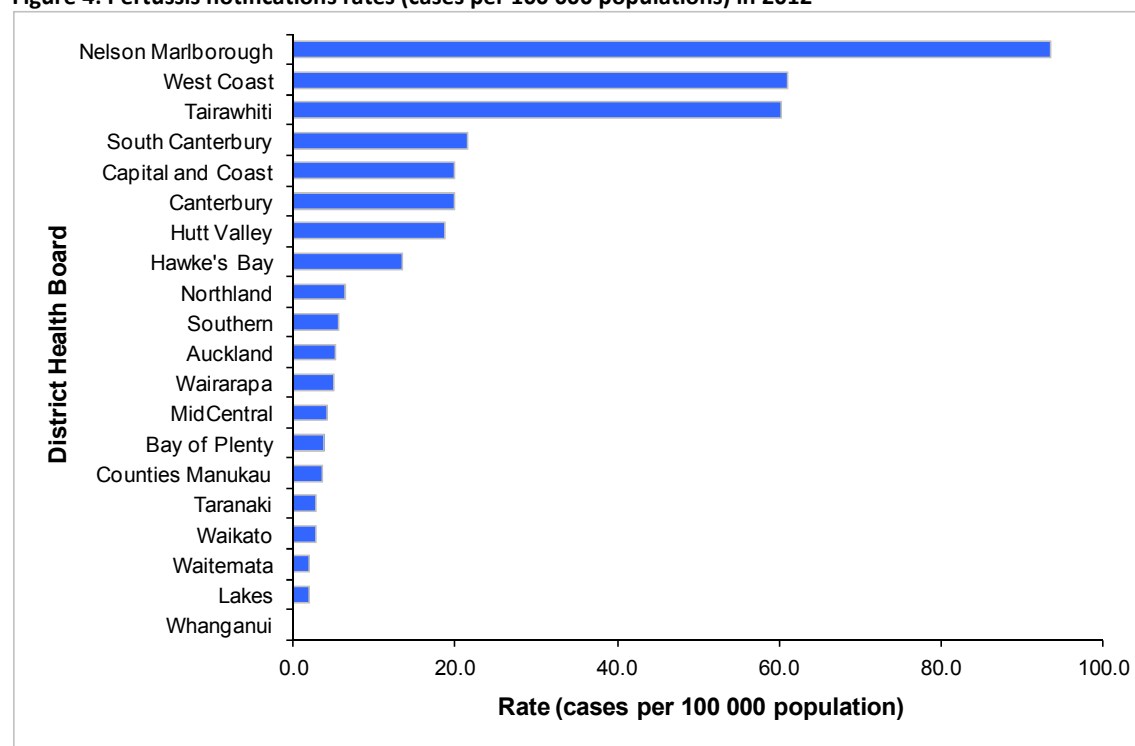
Hospitalisations

The distribution of hospitalisations by age group, ethnicity, and DHB is described in Table 1, Table 2 and Table 3 respectively. In the last three weeks, five hospitalisations were recorded in the following age groups: less than 1 year (4 cases), 50-59 years (1 case). There have been 22 hospitalisations reported in EpiSurv in 2012. Seventeen (77.3%) of these were infants aged less than one year including three cases aged less than six weeks. Auckland, Counties Manukau, and Southern DHBs had the highest number of cumulative hospitalisations (4, 4 and 3 cases, respectively). Of the cases with known ethnicity and hospitalisation status, ethnic-specific proportion of hospitalisations was as followed: Māori (13.6%, 6/44), Pacific Peoples (11.1%, 1/9), Other (10.0%, 1/10), and European (3.5%, 12/340).

Geographic distribution

The rates of pertussis notifications by DHB can be seen in Figure 4 and Table 5 (appendix). In the last two weeks, the highest number of notifications was reported in Canterbury (60 cases) and Nelson Marlborough DHB (54 cases). The highest cumulative rate in 2012 was recorded in Nelson Marlborough (93.4 per 100 000, 129 cases), followed by West Coast (61.1 per 100 000, 20 cases) and Tairāwhiti (60.2 per 100 000, 28 cases) DHBs. The highest number of notifications was also reported from Nelson Marlborough DHB (129 cases), followed by Canterbury (101 cases), Capital and Coast (58), Tairāwhiti (28) and Hutt Valley (27) DHBs.

Figure 4: Pertussis notifications rates (cases per 100 000 populations) in 2012



Rates were calculated using 2010 mid-year population estimates. Rates calculated on fewer than five cases are unstable and should be interpreted with caution (see Appendix for table).

Immunisation status

The immunisation status for confirmed pertussis cases with known age is shown in Table 3 and Table 4 for the last two weeks and for 2012, respectively. Of the 73 confirmed cases reported in the last two weeks, 44 (60.3%) had a known vaccination status. Of these 44 cases, 12 were not vaccinated. Four cases had received one dose of vaccine, 11 had received three doses, three had received four doses, and two cases reported having completed pertussis vaccination. Twelve cases reported being vaccinated but no dose information was available.

Table 3: Immunisation status of pertussis cases (confirmed) notified in the last two weeks (ending 3 Feb.)

Age Group	Total cases	One dose	Two doses	Three doses	Four doses	Five doses	Vaccinated		Unknown
							(no dose info)	Not vaccinated	
<6wks	0	-	-	-	-	-	-	-	-
6wks - 2mths	0	-	-	-	-	-	-	-	-
3-4 mths	0	-	-	-	-	-	-	-	-
5mths - 3yrs	19	0	0	8	2	0	1	5	3
4 - 10yrs	11	1	0	3	1	0	0	2	4
11+ yrs	43	3	0	0	0	2	11	5	22
Total	73	4	0	11	3	2	12	12	29

Of the 197 confirmed cases with known age reported during 2012, 137 (69.5%) had a known vaccination status (Table 4). Of these 137 cases, 44 were not vaccinated. Twenty-one cases had received one dose of vaccine, two cases had received two doses, 14 cases had received three doses, 17 cases had received four doses, and 12 cases reported having completed pertussis vaccination. A further 27 cases reported being vaccinated but no dose information was available.

Table 4: Immunisation status of pertussis cases (confirmed) notified in 2012 (since 31 December 2011)

Age Group	Total cases	One dose	Two doses	Three doses	Four doses	Five doses	Vaccinated		Unknown
							(no dose info)	Not vaccinated	
<6wks	1	0	0	0	0	0	0	0	1
6wks - 2mths	1	1	0	0	0	0	0	0	0
3-4 mths	4	1	0	0	0	0	0	3	0
5mths - 3yrs	38	0	2	10	5	0	5	11	5
4 - 10yrs	48	5	0	4	10	7	1	15	6
11+ yrs	105	14	0	0	2	5	21	15	48
Total	197	21	2	14	17	12	27	44	60

Appendix

Table 5: Pertussis cases and rates by DHB in 2012, and new cases in the last two weeks

DHB	Cumulative ² notifications			Last two weeks ³	
	Cases	Rates ¹	Hosp	Cases	Hosp
Northland	10	6.4	0	2	0
Waitemata	11	2.0	1	7	1
Auckland	23	5.1	4	12	0
Counties Manukau	18	3.7	4	5	1
Waikato	10	2.7	2	2	0
Lakes	2	1.9	0	1	0
Bay of Plenty	8	3.8	0	5	0
Tairāwhiti	28	60.2	1	11	0
Taranaki	3	2.7	0	3	0
Hawke's Bay	21	13.5	0	10	0
Whanganui	0	0.0	0	0	0
MidCentral	7	4.2	1	4	1
Hutt Valley	27	18.8	1	10	0
Capital and Coast	58	19.9	1	23	0
Wairarapa	2	5.0	1	0	0
Nelson Marlborough	129	93.4	1	54	0
West Coast	20	61.1	1	10	1
Canterbury	101	19.9	1	60	0
South Canterbury	12	21.5	0	6	0
Southern	17	5.6	3	7	1
Total	507	11.6	22	232	5

¹Rate of pertussis cases per 100 000 population calculated using 2010 mid-year population estimates. Rates calculated on fewer than five cases are unstable and should be interpreted with caution.

²Cumulative notifications since 31 December 2011

³Notifications between 21 January and 3 February 2012 inclusive

Case classification for pertussis notification in New Zealand

Confirmed	A clinically compatible illness that is laboratory confirmed by isolation of <i>Bordetella pertussis</i> from a pernasal swab, or epidemiologically linked to a confirmed case.
Probable	Cough lasting longer than two weeks and one or more of the following: <ul style="list-style-type: none"> • Paroxysmal cough • Cough ending in vomiting or apnoea • Inspiratory whoop for which there is no other known cause.
Suspect	In children under five years of age any paroxysmal cough with whoop, vomiting or apnoea for which there is no other known cause.
Other	Status recorded as <i>under investigation</i> or suspect case.
Notifications	Include confirmed cases, probable, and other as specified above.

This report will be available at: <http://www.surv.esr.cri.nz/surveillance/PertussisRpt.php>.